



P.B.5818 - Patentlaan 2
2280 HV Rijswijk (ZH)
☎ +31 70 340 2040
TX 31651 epo nl
FAX +31 70 340 3016

*No Correspondence
foreign no diary
entries made
for notifying
overseas Patent
offices*

Europäisches
Patentamt

Zweigstelle
in Den Haag
Recherchen-
abteilung

European
Patent Office

Branch at
The Hague
Search
division

Office européen
des brevets

Département à
La Haye
Division de la
recherche

☐ Nachshen, Neil Jacob
D Young & Co
21 New Fetter Lane
London EC4A 1DA
GRANDE BRETAGNE

MONEY	£
ORDER	
DIARY	
REC'D	5 - APR 2004
(LONDON)	
ANNO	
ENTRY	
FOR	

Datum/Date

10 1 01 04

Zeichen/Ref./Réf. P013751EPnjn	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°. 00961147.6
Anmelder/Applicant/Demandeur/Patentinhaber/Propriétaire/Titulaire MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.	

COMMUNICATION

The European Patent Office herewith transmits

- ☐ the European search report
- ☐ the declaration under Rule 45 EPC
- ☐ the partial European search report under Rule 45 EPC
- ☒ the supplementary European search report concerning the international application under Article 157(2) EPC relating to the above-mentioned European patent application. Copies of the documents cited in the search report are enclosed.

The following specifications given by the applicant have been approved by the Search Division :

- ☐ Abstract ☐ Title ☐ Figure
- ☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.
- ☐ The following figure will be published with the abstract, since the Search Division considers that it better characterises the invention than the one indicated by the applicant.
- Figure:
- ☐ Additional copy(copies) of the documents cited in the European search report.

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.



EPO Form 1507 02.93



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1 and 3 in part and 6,7

This invention is directed to a polymer electrolyte fuel cell comprising a gas diffusion electrode impregnated partly with an ionomer (polymer electrolyte), wherein the special technical feature resides in providing a seamless variation of gas permeability across the electrode thickness, in particular by ensuring a seamless gradient of pore distribution across the electrode's thickness.

2. Claims: 1 and 3 in part, 2, 8-11

This invention is directed to a polymer electrolyte fuel cell comprising a gas diffusion electrode impregnated partly with an ionomer (polymer electrolyte) and to a respective method of fabrication, wherein the special technical feature resides in providing a seamless variation of the amount of hydrogen conductive polymer material across the electrode thickness to respectively influence its local ionic conductivity.

3. Claims: 1 and 3 in part, 4, 5

comprising a gas diffusion electrode impregnated partly with an ionomer (polymer electrolyte), wherein the special technical feature resides in providing at least one catalyst-free polymer conductive layer disposed between the porous substrate of the gas diffusion electrode and a composite layer comprising catalyst and polymer electrolyte.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	WO 99 40237 A (CALIFORNIA INST OF TECHN) 12 August 1999 (1999-08-12) * page 9, line 23 - page 12, line 14; figures 1,2 *	1,3,6,7	H01M8/02H01M8/10 H01M8/10
Y	DE 196 47 534 A (DORNIER GMBH) 28 May 1998 (1998-05-28) * column 2, line 21-33 * * column 3, line 60 - column 4, line 58 * * column 5, line 12 - column 6, line 23; figure 1 *	1,3,6,7	
Y	* column 4, line 62-68 *	1	
Y	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 01, 29 January 1999 (1999-01-29) & JP 10 270051 A (OSAKA GAS CO LTD;UNITIKA LTD), 9 October 1998 (1998-10-09) * abstract *	1	
Y		1,3	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Y	US 5 501 915 A (HARDS GRAHAM A ET AL) 26 March 1996 (1996-03-26) * column 3, line 48-58 * * column 4, line 65 - column 6, line 50; example 1 *	1,3	H01M
X	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 08, 30 August 1996 (1996-08-30) & JP 08 088008 A (TOYOTA MOTOR CORP), 2 April 1996 (1996-04-02) * abstract *	1-4,6-9	
Y	* figures 3,5 *	10,11	
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search MUNICH		Date of completion of the search 19 March 2004	Examiner Thanos, I
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			



European Patent
Office

**SUPPLEMENTARY
EUROPEAN SEARCH REPORT**

Application Number
EP 00 96 1147

DOCUMENTS CONSIDERED TO BE RELEVANT				
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)	
X	EP 0 687 023 A (VITO) 13 December 1995 (1995-12-13)	1,4,5,8,9		
Y	* page 3, line 34 - page 4, line 29; examples 1,2 *	10,11		
A	* page 4, line 27-29 * ---	5		
Y	DD 88 122 A (DR. E. HOLLAX ET AL) 24 July 1970 (1970-07-24) * column 2, line 5-29 * * column 3, line 6-26 * ---	10,11		
X	US 5 882 810 A (REHG TIMOTHY J ET AL) 16 March 1999 (1999-03-16)	1,4,8		
A	* column 2, line 24-39 * * column 2, line 54 - column 4, line 14; figure 1; example 1 * ---	5		
A	US 5 523 177 A (CROPLEY CECELIA C ET AL) 4 June 1996 (1996-06-04) * column 4, line 30 - column 5, line 33; figure 2; example 1 * -----	1,8		
The supplementary search report has been based on the last set of claims valid and available at the start of the search.				TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Place of search MUNICH		Date of completion of the search 19 March 2004	Examiner Thanos, I	
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document				

4

EPO FORM 1503 03.82 (P04C04)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 96 1147

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9940237 A	12-08-1999	AU 2662699 A	23-08-1999
		EP 1055018 A1	29-11-2000
		WO 9940237 A1	12-08-1999
DE 19647534 A	28-05-1998	DE 19647534 A1	28-05-1998
JP 10270051 A	09-10-1998	NONE	
US 5501915 A	26-03-1996	AT 164705 T	15-04-1998
		AU 4137293 A	23-12-1993
		CA 2098800 A1	21-12-1993
		DE 69317700 D1	07-05-1998
		DE 69317700 T2	20-08-1998
		DK 577291 T3	01-02-1999
		EP 0577291 A1	05-01-1994
		ES 2114005 T3	16-05-1998
		JP 3211997 B2	25-09-2001
		JP 6052862 A	25-02-1994
JP 08088008 A	02-04-1996	NONE	
EP 0687023 A	13-12-1995	BE 1008455 A3	07-05-1996
		AT 163805 T	15-03-1998
		WO 9534098 A1	14-12-1995
		CA 2151104 A1	08-12-1995
		DE 69501681 D1	09-04-1998
		DE 69501681 T2	20-08-1998
		EP 0687023 A1	13-12-1995
		JP 9501541 T	10-02-1997
		US 5561000 A	01-10-1996
DD 88122 A		NONE	
US 5882810 A	16-03-1999	AT 245852 T	15-08-2003
		AU 713035 B2	18-11-1999
		AU 7389096 A	28-04-1997
		CA 2233575 A1	10-04-1997
		CN 1201554 A	09-12-1998
		DE 69629201 D1	28-08-2003
		EP 1267436 A2	18-12-2002
		EP 1267433 A2	18-12-2002
		EP 0853824 A2	22-07-1998
		JP 10513006 T	08-12-1998
		JP 2001185158 A	06-07-2001
		JP 3453125 B2	06-10-2003
		JP 2001189155 A	10-07-2001

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 96 1147

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5882810	A	JP 2001240755 A	04-09-2001
		RU 2182737 C2	20-05-2002
		WO 9713287 A2	10-04-1997

US 5523177	A	04-06-1996	NONE
